



City of Akron Electric Vehicle Taskforce Report

2.23.23



DANIEL HARRIGAN, MAYOR

ABOUT

The City of Akron's Public Facility EV Planning Taskforce met for the first time on September 14, 2022 to explore opportunities to install more charging stations throughout Akron given the expected rise in ownership and EV affordability projections. The Mayor stated that "Our investments and planning today will help reduce emissions from transportation which will in turn help create a healthier and more just city in the future. Working with key partners, we hope to create a network of EV charging stations that will be equitably placed and well-utilized throughout Akron."¹

The transition from conventional vehicles to electric vehicles is difficult to envision and has been likened to the transition from the use of horses to conventional automobiles for individual mobility.² The way we travel and the considerations each individual driver takes into account when traveling will change. Akron's approach to developing the City's initial and ideal public EV charging network was to ask the Taskforce to first consider equity – the City wants to ensure that any benefit of a public network may be realized by everyone in Akron. We went about our work with knowledge that our decisions today could impact access to and affordability of basic transportation in the near future.

The Taskforce makeup and process was unique in that City staff developed proposals for Taskforce consideration during the midst of the Taskforce's work. Obtaining feedback from the entirety of the Taskforce allowed City staff to develop a proposed plan and request for proposals for a public network of charging stations and mobility options that is well-informed and ready for additional feedback from the community at-large.

1: See the City's Press Release [here](#).

2: In 2017, the International Monetary Fund published a Working Paper exploring the likeness between the two transitions in *Riding the Energy Transition: Oil Beyond 2040*, available here: <https://www.imf.org/en/Publications/WP/Issues/2017/05/22/Riding-the-Energy-Transition-Oil-Beyond-2040-44932> (Using the precipitous change in the horse-car transition to demonstrate the potential displacement of conventional vehicles by EVs: over the first 10 years, cart horse ownership fell by 30%; in the next 15 years, cart horse ownership fell by 90%).



01 GOALS

The City proposed initial goals for the Taskforce to include a focus on basic mobility needs and included:

- Prioritizing buildout targets by leveraging City property and available funding;
- Ensure that public EV charging and EV car sharing is available, accessible and equitable;
- Identify and eliminate public charging siting barriers;
- Develop Citywide planning benchmarks; and
- Trigger a market for private investment in high-demand areas.

Some members of the Taskforce made recommendations related to the goals themselves, which included the ideas of developing EV adoption goals for the City, setting City fleet EV adoption goals, and environmental stewardship commitments. As more fully described below, the Taskforce honed in on the first four goals listed above and explored potential community health and equity goals in depth. Importantly, the Taskforce's recommendations include the need for the City to gather broad community feedback to ensure proper siting of public EVSE infrastructure to achieve both equity and high utilization.

02 BACKGROUND

The National Renewable Energy Laboratory, Technical Report NREL/TP-5400-81065, cites access to charging infrastructure as a primary barrier to increasing EV adoption.³ While home and workplace charging has set a foundation for EV adoption, the capital costs and need for public involvement will disproportionately increase for low-income households, renters and residents of multi-family dwelling units, making EV adoption more difficult for those residents. A public EV charging network can reduce that burden, encourage equitable EV adoption, and enhance resident mobility.

3: Ge, Yanbo, Christina Simeone, Andrew Duvall, and Eric Wood. 2021. There's No Place Like Home: Residential Parking, Electrical Access, and Implications for the Future of Electric Vehicle Charging Infrastructure. Golden, CO: National Renewable Energy Laboratory. NREL/TP-5400-81065. <https://www.nrel.gov/docs/fy22osti/81065.pdf>.

a. Regional EV Adoption & Projections

By the end of 2022, Summit County Alternative Fuel Vehicle registrations reached 3,862 since 2019 registrations began. In Summit County, the adoption rate for Battery Electric Vehicles and Plug-in Hybrid Electric Vehicles reached 3.5% in 2022.⁴ Based on the current number of registered EVs in the region and the assumption that 100% of current EV drivers have access to home charging, the Energy Department's Alternative Fuel Data Center recommends the development of 56 public Level 2 charging plugs and 23 public DC fast charging plugs in the County.⁵

Currently, Akron has 17 Level 2 charging stations located in downtown parking decks and area businesses and 1 public DC fast charging station at Akron METRO RTA.

City staff have compiled the following initial projections for Akron's public charging network needs:

Table 1: Initial Projected Public EV Charging Station Needs

YEAR	REGISTERED EVS	MONTHLY EV VISITORS	LEVEL 2	DC FAST-50kw	DC FAST-150kw
2022	637	2,687	2	1	0
2027	9,764	422,115	178	97	31
2032	41,909	1,187,996	454	232	72

Nationally, President Biden has set a goal for the Bipartisan Infrastructure Law (BIL) investments in EV charging infrastructure to create a "convenient and equitable network of 500,000 chargers" by 2030 along US Highways first and then within communities.⁶ The funding associated with both the formula and competitive grants available as a result of the BIL are described in more detail below.

4: Ohio's Alternative Fuel Vehicle (AFV) Dashboard provides up-to-date data on AFV Registrations and EV Adoption Rates: <https://app.powerbi.com/view?r=eyJrIjoIMDdkNzE5YmQtMTdkMi00MjNiLWFlNWYtMTBiZDU1ODZlYTQ4IiwidCI6IjZhYmJlNDI1LTkzYjYtNDUxMi04MzQ5LWI1MmE1MWYzMzUyMSJ9&pageName=ReportSection0d6b2f5e11e2ae090000>.

5: The U.S. Department of Energy's Electric Vehicle Infrastructure Projection Tool (EVI-Pro) Lite is available here: <https://afdc.energy.gov/evi-pro-lite>.

6: FACT SHEET: The Biden-Harris Electric Vehicle Charging Action Plan, December 13, 2021. <https://www.whitehouse.gov/briefing-room/statements-releases/2021/12/13/fact-sheet-the-biden-harris-electric-vehicle-charging-action-plan/>.

b. EV Affordability Projections

The cost of EV batteries has fallen from \$1,000 per kilowatt-hour (kWh) in 2010 to \$130 in 2021.⁷ Many analysts believe that EVs will become cost-competitive with conventional vehicles when battery costs fall to \$100 per kWh. After the Russian invasion of Ukraine, average battery costs have increased due to Russia supplying a larger percentage (13%) of the global high-grade nickel market, a metal that, along with lithium and cobalt, account for approximately 27% of battery input costs. Even so, projections for battery prices reaching \$100/kWh are within the next 2-3 years or in the years 2024-2025.

c. City Planning Benchmarks

1. The Need for Affordable Mobility in Akron

In Akron for the year 2022, average household transportation costs⁸ exceeded average housing costs as follows:

- Transportation Costs percent of Income: 21%
- Housing Costs percent of Income: 18%

In addition, the cost of transportation and owning a vehicle in Akron in 2022⁹ were as follows:

- Annual Transportation Cost: \$12,171
- Annual Automobile Ownership Cost: \$9,853

Finally, the availability of other transportation options in Akron as compared to other areas of the country is fairly low for 2022:

- Transit Connectivity Index (0-100): 7¹⁰

With such a high transportation to income ratio and such a low transit connectivity index score, Akron is in need of affordable mobility options. The City's siting, installation and operation of electrical vehicle supply equipment (EVSE) and EV carshare locations should be tailored to meet those needs.

7: Marianne Kah, Hon Xing Wong, Jasmine Chiu, and Samantha Lang, Forecasts of Electric Vehicle Penetration and its Impact on Global Oil Demand. <https://www.energypolicy.columbia.edu/research/report/forecasts-electric-vehicle-penetration-and-its-impact-global-oil-demand>.

8: The H+T Affordability Index provides these details by using the "Transportation Costs % Income" option and the "Housing Costs % Income" option in the dropdown menu for Akron, Ohio: <https://htaindex.cnt.org/map/>.

9: The H+T Affordability Index provides these details by using the "Annual Transportation Cost" option and the "Annual Auto Ownership Cost" option on the drop down menu for Akron, Ohio: <https://htaindex.cnt.org/map/>.

10: The Transit Connectivity Index is based on the number of bus routes and train stations within walking distance for households in a given block group scaled by the frequency of service. The TCI can be accessed for a given area as part of the H+T Affordability Index: <https://htaindex.cnt.org/map/>.

c. City Planning Benchmarks (cont'd)

2. The 10-minute Walk

Initially, City staff developed a location study that centered on the planning benchmark of an accessible Level 2 charging station located within a 10 minute walk of any Akron residence for the consideration of the Taskforce and its various committees. The location study also included 9 DC Fast Charger locations plotted by a 10-15 minute drive planning benchmark. The location study achieved equal accessibility to Level 2 charging stations in the City, but did not address many of the challenges in siting EV charging stations to accommodate density of renters and public housing locations; the need to alleviate local concentrations of NOx and PM 2.5; consideration of the proximity to transit hubs or multi-modal transportation opportunities; resident demographics; or density of households without access to home charging. After Taskforce input, City staff mapped the 10-minute walk planning benchmark into 130 EV charging station “development zones” to garner public feedback on priority levels for buildout of Level 2 and 3 chargers and projected frequency and duration of use in each zone.

3. Equitable Mobility Outcomes

The City asked the Taskforce to strongly consider mobility outcomes in its planning and recommendations. Over 60% of Akron lies within a “disadvantaged community” as defined by the federal government’s NEVI guidance, which combines Department of Transportation and Department of Energy definitions of disadvantaged communities to identify energy and transportation-burdened communities, communities facing high rates of environmental pollution, those whose economies are highly dependent on fossil energy sources, and those with high rates of social vulnerability.¹¹ City staff incorporated the disadvantaged community GIS data into our location studies for a public EV charging network and a pilot EV carshare program.¹² While the 10-minute walk planning benchmark can achieve equal access to a public charging network, it does not necessarily provide equitable access to the benefits of a public charging network.

To address equity, the Taskforce focused its efforts on providing a low-cost entry point to EV transportation with a pilot EV carshare program, identifying low-cost charging options for end users in Akron, and incentivizing the buildout of a public charging network in parts of the City with little access to home charging opportunities. Approximately 68% of the City’s residences are single-family, detached housing units that are more likely to have access to home charging.¹³ City staff developed a second location study for a pilot 12-car EV carshare program in the City that emphasizes coordination with nonprofit organizations interested in facilitating mobility within the City’s disadvantaged communities.

11: The methodologies used by DOT and DOE to determine if a community is “disadvantaged” for EV purposes are described here: <https://www.anl.gov/esia/electric-vehicle-charging-equity-considerations>

12: The standalone Justice40 Map for Electric Vehicle Charging from the federal government is available here: <https://anl.maps.arcgis.com/apps/webappviewer/index.html?id=33f3e1fc30bf476099923224a1c1b3ee>.

13: See the “percent single family detached households” field for Akron, Ohio: <https://htaindex.cnt.org/map/>.

d. Available Funding for a Public EV Charging Network

The major funding available for public EV charging infrastructure relates to the Bipartisan Infrastructure Law and the Inflation Reduction Act. All 50 states in the United States currently have approved Electric Vehicle Infrastructure Deployment Plans that will be funded by \$5 billion over 5 years from the Bipartisan Infrastructure Law's National Electric Vehicle Infrastructure (NEVI) Formula Program. Ohio's NEVI Program was designed to build an EV charging network first on Interstate Highways and then on US Routes with the planning objective of building charging clusters that are accessible, reliable, and located every 50 miles throughout designated Alternative Fuel Corridors. Ohio had a Request for Proposals out with a bid submission deadline of December 21, 2022 for turnkey EV charging stations at 30 locations along the designated alternative fuel corridors on the interstates. Once the Alternative Fuel Corridors are built out, the state has stated that it will distribute the remaining funds to community EV infrastructure programs.

The Bipartisan Infrastructure Law also includes another \$2.5 billion allocated over five years for a discretionary community grant program to fund deployment of publicly accessible alternative fueling and charging infrastructure for vehicles traveling within communities.¹⁴ These funds are intended to target charging infrastructure on public roads, schools, parks, and in publicly accessible parking facilities with a priority on low- and moderate-income neighborhoods, and communities with low private parking availability.

Finally, the Inflation Reduction Act allocates \$1 billion to state, municipalities, Indian tribes and non-profit school transportation associations to replace class 6 and 7 heavy-duty vehicles with EVs.¹⁵ The system of rebates can be used for up to 100% of the costs for vehicles, infrastructure, training, and planning and technical activities to support electrification. Notably, the Inflation Reduction Act also provides tax incentives for commercial uses at 6% with a maximum credit of \$100,000 per charging unit as long as the EVSE is placed in a low-income community.

14: The latest update from the White House indicates that the competitive community grants Notice of Funding Opportunity will be released in "Winter 2023:" <https://www.whitehouse.gov/wp-content/uploads/2022/05/BUILDING-A-BETTER-AMERICA-V2.pdf#page=144>. On February 15, 2023, the Federal Highway Administration made its Charging and Fueling Infrastructure Discretionary Grant Program website live: <https://www.fhwa.dot.gov/environment/cfi/>.

15: Learn more about the Inflation Reduction Act with The White House Guidebook: <https://www.whitehouse.gov/cleanenergy/inflation-reduction-act-guidebook/>.

03. Recommendations

1. Utilize a public-private partnership EV carshare service, such as SWAY Mobility, to provide affordable electric vehicle options to Akron residents.

EV Carshare provides users with reliable car access without the extreme cost of car ownership and lowers the number of vehicles on the road.¹⁶ It also serves to introduce users to electric vehicles.

During the course of the Taskforce's work and with Taskforce input, the City developed a proposed EV Carshare Pilot Program with Sway Mobility that considered the success of both large-scale EV carshare programs such as the Evie Carshare in the Twin Cities¹⁷ and small-scale programs such as Sway's program with Oberlin, Ohio.¹⁸ As a 12-car pilot program, the City of Akron's EV Carshare complements public transit and the City's successful micromobility program.¹⁹ The City anticipates that a typical trip will last around 1 ½ hours and travel 10-14 miles. The City also anticipates that the top use cases will include trips for groceries, food pickup, and to access basic medical and governmental services. The keyless service operates through the use of an app for scheduling, accessing the car and paying. The EV Carshare program fills a mobility gap in Akron for on-site, short-term access to mobility.

16: The Twin Cities Evie Carshare estimates that for every car-sharing vehicle available in a community, the people of that community purchase 8-11 fewer cars than they did before.

17: The Evie network includes 70 charging hub locations and 150 electric carshare vehicles at full buildout. Currently, 40 hubs are constructed and operational and 100 vehicles are in service. The Cities of Minneapolis and St. Paul partnered with Hourcar, a nonprofit entity, and Xcel Energy to startup their program in 2017. Notably, Xcel Energy is able to charge its ratepayers for its investment in the system, which is a regulatory approval that has not been sought in First Energy's service area in Akron. In an interview with Xcel Energy's Clean Transportation team, they described great success of the Evie Program on the usage side, especially in the summer, but underutilization at mid- to low-income sites, which they attributed to a marketing and education problem rather than an access problem. All of the Evie Network charging stations are located curbside in the public right-of-way.

18: The City of Oberlin has two cars in its EV CarShare with one housed at Oberlin College and another located at a nonprofit social services organization. In addition, Ford Motor Company employs Sway to operate an EV carshare program for its innovation district and the State of Michigan recently awarded Sway a grant to expand that program.

19: The City has a license/special services agreement with Spin to provide electric scooter and bike share services throughout Akron that started in the 4th quarter of 2020. By July of 2021, the City extended the agreement term, increased the number of scooters, and started the use of electric bikes in the sharing service. By the end of October of 2022, the Spin app had 46,387 Akron-based members who had taken 207,074 rides. Just in the month of October of 2022, members took 7,056 trips (down from 2,843 in the prior/warmer month of September) with an average time per trip of 11.4 minutes and an average distance of 1,646 meters. Trip heat maps show very high micromobility use in downtown and the University areas as well as the main thoroughfares in Highland Square, Sherbondy Hill, Arlington, and South Akron.

a. Equity & Incentives (cont'd)

The Taskforce considered different approaches to location criteria for EV Carshare charging stations and vehicles, including the use of the City's community centers. After committee meetings related to equity and accessibility of a public charging network and EV carshare, the Taskforce settled on location criteria that included the following: population density, poverty, low transit services levels, the presence of a nonprofit services partner, and balancing the locations that result from those criteria with expected high-utilization locations, which tend to be higher education centers and downtown areas. Based on those factors, the City conducted an EV Carshare location study with the following locations chosen for an EV Carshare vehicle during the pilot:

North Hill CDC | 711 N Main St

Within a 15-minute walk:

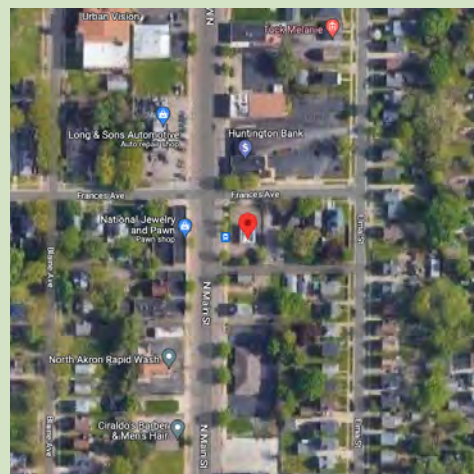
4,212 households served;

10,475 people served;

Median household income: \$40,144

H+T Index:

- Transportation to income costs: 19%
- Housing to income costs: 13%
- Transit Connectivity Index (0-100): 3



The Well CDC | 647 E Market St

Within a 15-minute walk:

2,231 households served;

4,413 people served;

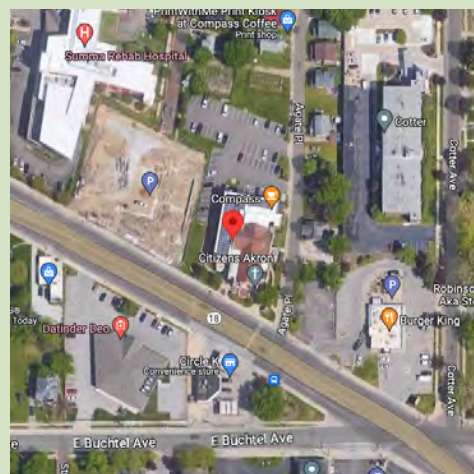
Median household income: \$14,427

H+T Index:

Transportation to income costs: 16%

Housing to income costs: 7%

Transit Connectivity Index (0-100): 4



a. Equity & Incentives (cont'd)

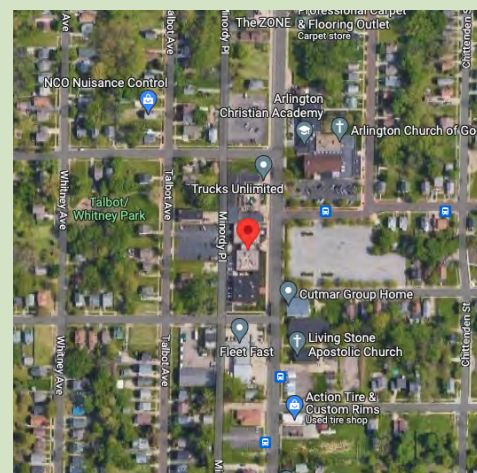
EANDC | 550 S Arlington St

Within a 15-minute walk:

3,188 households served;
6,774 people served;
Median household income: \$15,619

H+T Index:

Transportation to income costs: 21%
Housing to income costs: 8%
Transit Connectivity Index (0-100): 4



UA Buchtel Fields | 433 Kling St

Within a 15-minute walk:

2,828 households served;
6,966 people served;
Median household income: \$18,541

H+T Index:

Transportation to income costs: 22%
Housing to income costs: 16%
Transit Connectivity Index (0-100): 4



UA North Campus Parking Deck | 183 S Forge St (2 vehicles)

Within a 15-minute walk:

1,943 households served;
5,323 people served;
Median household income: \$13,727

H+T Index:

Transportation to income costs: 16%
Housing to income costs: 18%
Transit Connectivity Index (0-100): 7



a. Equity & Incentives (cont'd)

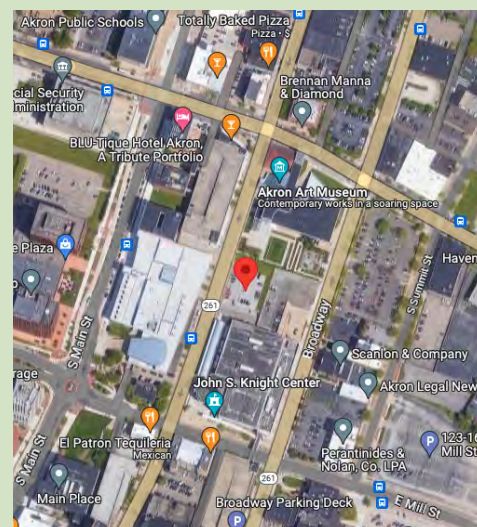
Downtown Library/JS Knight Center | 71 S High St (2 vehicles)

Within a 15-minute walk:

1,244 households served;
2,882 people served;
Median household income: \$12,136

H+T Index:

Transportation to income costs: 15%
Housing to income costs: 13%
Transit Connectivity Index (0-100): 12



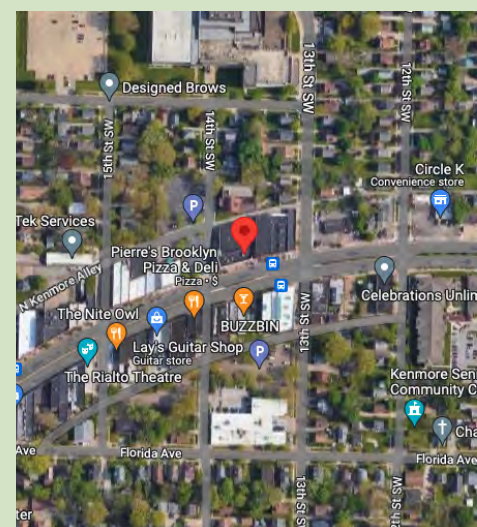
Kenmore Branch Library | 969 Kenmore Blvd.

Within a 15-minute walk:

3,265 households served;
7,266 people served;
Median household income: \$27,077

H+T Index:

Transportation to income costs: 19%
Housing to income costs: 16%
Transit Connectivity Index (0-100): 3



Summit Lake Community Center | 380 W Crosier St.

Within a 15-minute walk:

2,071 households served;
4,101 people served;
Median household income: \$13,910

H+T Index:

Transportation to income costs: 17%
Housing to income costs: 7%
Transit Connectivity Index (0-100): 6



a. Equity & Incentives (cont'd)

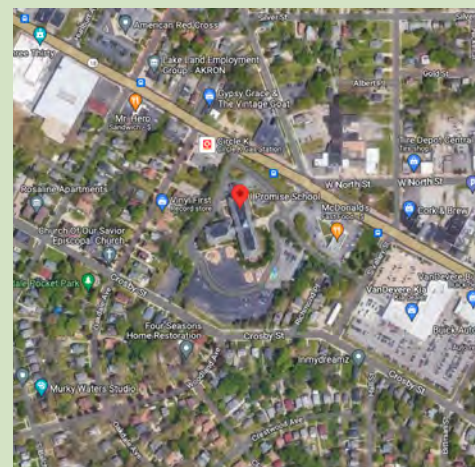
I Promise School | 400 W Market St.

Within a 15-minute walk:

3,195 households served;
4,929 people served;
Median household income: \$26,403

H+T Index:

Transportation to income costs: 20%
Housing to income costs: 17%
Transit Connectivity Index (0-100): 5



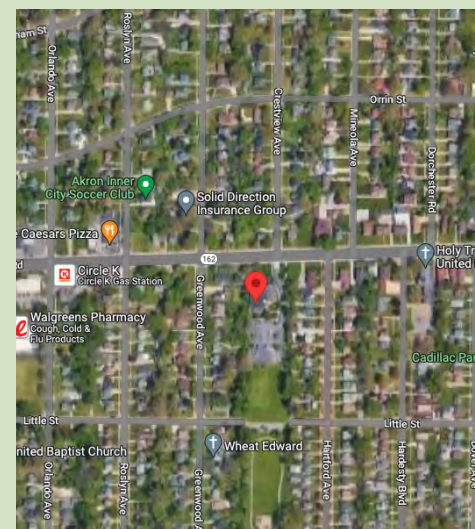
Maple Valley Branch Library | 1187 Copley Rd.

Within a 15-minute walk:

3,386 households served;
7,196 people served;
Median household income: \$25,599

H+T Index:

Transportation to income costs: 22%
Housing to income costs: 20%
Transit Connectivity Index (0-100): 2



Akron's proposed pilot EV Carshare will feature:

- a driver fee to carshare users at \$8/hour, which covers wear, tear and administration of the program;²⁰
- the driver does not need to have their own car insurance and does not pay for charging, but does need to have a valid driver's license that must be confirmed in the app; and
- monthly analytics on utilization at each location.

The City is actively engaging with potential corporate sponsors for the EV Carshare to initiate the 2-year pilot program at \$180,000/year in program costs and \$30,000 for one-time setup costs.

²⁰: In comparison, a Spin scooter in Akron costs \$7.95 for a 15 minute ride.

a. Equity & Incentives (cont'd)

2. Prioritize buildout of a public network where little access to home charging is available.

The Taskforce identified residences with little access to home charging as a primary barrier to facilitating basic mobility needs of Akron residents as electric vehicles become more affordable than conventional vehicles. Calling residential access among multi-family properties a “significant equity issue,” a study by the National Renewable Energy Laboratory projects that in the most optimistic EV adoption scenario, 25% of plug-in electric vehicles will not have access to home charging, of which “45% are from single-family detached homes and 40% are from apartments.”²¹ The study finds that investment in public charging infrastructure “as a substitute for residential access” or “to complement residential access” for multi-family homes, rented single-family homes and detached single-family homes is necessary to overcome barriers to EV adoption and ensure equity in EV adoption. Without public EVSE infrastructure, the total cost of plug-in electric vehicle ownership may be higher for residents without home charging access.

The Taskforce Access Committee recommended that the City consider grants, assistance or incentives for owners of apartment complexes to install EVSE. Similarly, the Access Committee recommended development of public EVSE in areas of Akron where single-family homes do not have driveways. Finally, the Access Committee of the Taskforce recommended that the City consider a program to assist homeowners with upgrading their house electric for a 240-volt plug.

3. Require that all new residential construction provide at least one 240-volt plug per dwelling unit.

The Taskforce recommends that the City require that all new residential buildings are “EV-Capable” in anticipation that each residential unit will have at least one electric car. Currently, new units may have enough 240-volt outlets to handle a washer and dryer. The Taskforce recommends that the City, at a minimum, require that new residential buildings install electrical panel capacity with a dedicated branch circuit and a continuous raceway from the panel to the anticipated future EV parking spot, which is known as “EV-Capable.”²² For new multi-family housing, the City should consider adopting a required percentage of total parking spaces as EV-Capable.²³ Ideally, the City should require the installation of electrical panel capacity and raceway with conduit to terminate in a junction box or 240-volt charging outlet, which is known as “EV-Ready.” In the future, the City should consider requiring a minimum number of Level 2 EV charging stations are installed at new residential builds, which is known as “EVSE-Installed.”

21: Ge, Yanbo, Christina Simeone, Andrew Duvall, and Eric Wood. 2021. There's No Place Like Home: Residential Parking, Electrical Access, and Implications for the Future of Electric Vehicle Charging Infrastructure. Golden, CO: National Renewable Energy Laboratory. NREL/TP-5400-81065. <https://www.nrel.gov/docs/fy22osti/81065.pdf>.

22: This standard is known as “EV-Capable” in the International Code Council's “Electric Vehicles and Building Codes: A Strategy for Greenhouse Gas Reductions” available here: https://www.iccsafe.org/wp-content/uploads/21-20604_COMM_EV_Strategy_RPT_v5.pdf.

23: Columbus, Ohio has adopted legislation that will be effective January 1, 2024 that requires market-rate multi-unit residential buildings with 4 or more dwelling units to include 20% of parking spaces as EV-Capable and 2% of parking spaces with EVSE installed. For single-, two-, and three-unit dwellings, Columbus is requiring one EV Ready outlet per dwelling unit. The Columbus ordinance is available here: <https://columbus.legistar.com/LegislationDetail.aspx?ID=5736124&GUID=534FD06B-B01A-4C17-8AC8-89CB73D0AF5C&Options=ID%7CText%7C&Search=1617-2022&FullText=1>.

a. Equity & Incentives (cont'd)

4. Prioritize Level 2 charging station buildout to ensure that public charging stations offer affordable, low-cost entry points to charging.

Alternating Current (AC) Level 1 chargers provide around 5 miles of range for every hour of charging at 1.9 kW of charging power. They are typically installed when there is only a 120 Volt outlet available, such as at a residence.

AC Level 2 charging stations provide 6.6 kW to 19.2 kW of power for drivers to charge their vehicles and are used for charging over a long period of time, such as overnight, at shopping centers, airports, hotels, businesses, government offices, and residences. Level 2 chargers provide around 25 miles of range for every hour of charging and operate through 240 V (residential) or 208 V (commercial) electrical service.

Direct-current (DC) Level 3 chargers, known as “DC Fast Chargers,” provide around 100-200 miles of range for every 30 minutes of charging. These chargers are typically located along heavy traffic corridors and in locations where medium- and heavy-duty commercial EV fleet hubs exist.

Use cases for fast charging are limited because of the steep cost to install, operate and maintain the chargers; the burden put on the electrical grid; and the reliance on home charging for a large percentage of households with electrical vehicles. The purpose of public DC Fast Chargers are to reduce what is known as “range anxiety,” or the fear that you will run out of power to complete a trip because of the unknowns around whether a charging station will be available, well-maintained, and accessible for long-distance trips. There are several locations where installation, operation and maintenance of a DC Fast Charger may serve to bring travelers off Akron’s area highways and into places where the City has strategic development goals, such as Summit Lake, downtown, Maple Valley (Exit 131-Copley Rd on I-77), and the Merriman Valley as a gateway to the Cuyahoga Valley National Park. At least one of those locations may be developed as part of the NEVI formula fund expenditures by the State of Ohio. While the City may seek to develop the other DC Fast Charger locations as part of the buildout of a public charging network, the Taskforce recommends that the City focus on large-scale installation, operation and maintenance of Level 2 public chargers to maintain affordability for EV users and promote equity in the development of a public network.

5. Obtain public feedback on buildout priority locations.

The City’s location study utilizing the 10-minute walk planning benchmark for Level 2 charging stations across the City results in approximately 130 EVSE installations. Instead of planning for a specific pinpoint location for charging stations, the City converted the 10-minute walk areas into “development zones.” Those zones can now be prioritized for buildout considering the factors of highest potential utilization, lowest ranking for access to home charging, and population density as determined by both mapping data and community feedback. The current location study includes a community survey where members of the public can provide the City with feedback related to the priority ranking for buildout.



b. Emissions Reduction

Reducing particulate matter (PM), nitrogen oxides (NOx) and greenhouse gas emissions (GHG) in Akron were also a point of consideration for the Taskforce. While the Taskforce discussed emissions from mobile conventional vehicles most impacting residents living around highways, we also discussed that the solution to those impacts is not necessarily EV charging station sites in those impacted places. Instead, the Taskforce recommends that encouraging greater EV adoption more generally will alleviate the burden of localized PM and NOx emissions around highways.

Regarding GHG emissions, the City of Akron analyzed its baseline greenhouse gas emissions inventory in 2005 and, again, in 2009.²⁴ In 2005, our carbon emissions inventory from government operations were 255,012 metric tons of CO₂e. By 2009, the City had already reduced its inventory to 222,532 metric tons, which represents a 13% decrease. By far, the source of the greatest metric tons of CO₂e in 2009 was the City's steam plant with 113,733 out of a total for all categories of emissions of 222,533 CO₂e.

In 2020, Akron Energy Systems, the City's steam plant delivering heat and cooling to downtown Akron businesses and hospitals, transitioned to high efficiency natural gas boilers.²⁵ Today, the steam plant has reduced its GHG contributions to 43,111 CO₂e, which is a 62% decrease. With the City's improvements to the steam plant alone, Akron has reduced its governmental operations emissions by 31% from its 2009 levels and by 40% from its 2005 levels.

In addition to the significant investments in the steam plant, Akron has optimized its energy systems for wastewater and water delivery systems; invested in energy efficiency in its buildings and facilities; and secured electric aggregation for both governmental and community use that is 100% carbon free. While there is still more work to be done, these actions have already achieved the goal of 30% GHG emission reductions by 2030 and have most likely put the City on track to achieve governmental carbon neutrality by 2050.

Regarding community GHG emissions and City fleet vehicles, transportation continues to represent the largest source of greenhouse gases in the United States. In Akron, our 2009 community greenhouse gas emissions were very high in the following categories: 907,986 CO₂e for residential; 1,275,387 CO₂e for commercial/industrial; and 859,646 CO₂e for transportation. However, 424,981 and 996,445 CO₂e of the residential and commercial/industrial CO₂e totals, respectively, were attributable to the electrical use of the emissions from those sectors. Akron's electric aggregation program now utilizes 100% carbon free electricity.²⁶ Without the electrical CO₂e contributions to the residential and commercial/industrial sectors, community greenhouse gas emissions are now most significant from the transportation sector at 859,646 in 2009 while only 483,005 and 278,942 CO₂e were attributable to residential and commercial/industrial at that time.²⁷ As the most significant source of Akron's community GHG emissions, the Taskforce believes that a community EV charging station infrastructure program and EV carshare will serve both the City's equitable mobility and any community emissions reduction goals.

24: Greenprint for Akron, 2009 Community-Wide Summary Report, Greenhouse Gas Emissions Inventory, March 2012. <https://app.sharebase.com/#/document/89086/share/470-4MZx-M3HAB6--RoHmBhn2fFvX4Cw>.

25: The first of three high efficiency boilers were installed in September of 2019. <https://www.akronohio.gov/cms/news/db25c5278cd627d7/index.html> The remaining two were put online in March of 2020.

26: The City of Akron renewed its electric aggregation program with Energy Harbor from May 2021 through May of 2025. The program utilizes electric generation that is 100% carbon-free. <https://www.akronohio.gov/cms/news/3129f8a73e4b1505/index.html#:~:text=Following%20a%20competitive%20bid%20process,in%20favor%20of%20government%20aggregation>.

27: The community CO₂e contributions are discussed starting on page 3 of the Greenprint for Akron, March 2012 Report. <https://app.sharebase.com/#/document/89086/share/470-4MZx-M3HAB6--RoHmBhn2fFvX4Cw>

c. Siting Barriers

The Taskforce considered accessibility, the practicality of curbside or off-street charging locations, and electrical capacity in downtown parking decks as potential siting barriers to publicly-accessible EV charging stations in Akron.

1. Accessibility

The Taskforce Access Committee specifically addressed the need for public charging stations to incorporate designs to accommodate people with special needs or disabilities. The Taskforce Operations, Maintenance, Design & Networking Committee reviewed the Federal Highway Administration and U.S. Department of Transportation Notice of Proposed Rulemaking, 87 Fed. Reg. 37262 (Jun. 22, 2022), that proposes minimum standards and requirements for the design, installation, operation, and maintenance of charging stations funded under the National Electric Vehicle Infrastructure Formula Program and projects for the construction of publicly accessible electric vehicle chargers. Those proposed rules will likely set standard signage and striping requirements for traffic control and on-premises signs that may address accessibility.

The Taskforce's Access Committee recommended that the City, perhaps in collaboration with the County, develop a permitting system for publicly accessible EV charging stations and private installations to ensure accessibility and safety even when IIJA funds are not being utilized. The Department of Energy provides permitting template for state and local governments with a form permit for EVSE.²⁸ The City of Columbus has also developed a permitting system²⁹ and EV parking requirements at new affordable housing developments that has recently gone through public notice and comment.³⁰

2. Chargers at Curbside or in Public Off-street Parking Areas

At the outset of the Taskforce's work, the City was leaning toward utilizing off-street, publicly-owned parking areas rather than curbside charging stations for a public network of electric vehicle supply equipment. The primary concern about curbside installations revolved around the prospect of further downtown roadway construction after Akronites weathered a long period of construction along Main Street. While the Taskforce maintained the EV Carshare locations at off-street nonprofit partner locations and we recognize the need for EVSE in off-street parking locations at multi-family living units, the Taskforce encourages the City to remain open to more accessible and obvious EV charging station locations at curbside for Akron's public charging network. This is especially true considering the success of the curbside EV Spot Network in Minneapolis and St. Paul, Minnesota. Some municipalities have also developed policies on lamppost chargers to ease public access burdens.³¹

28: Permit for Charging Equipment Installation: Electrical Vehicle Supply Equipment Form, https://afdc.energy.gov/files/pdfs/EV_charging_template.pdf.

29: The City of Columbus' Audit of its current permit system is available here: https://d2rfd3nxvhnf29.cloudfront.net/2020-03/2018-04-05_ChargingPermits.pdf.

30: The City of Columbus EV Ready Parking Ordinance draft can be found here: <https://www.columbus.gov/sustainable/evreadyparking/>. Their response to public comment is also available at the same address.

31: The City of New Orleans allows residents to install lamppost chargers in its ordinance: https://library.municode.com/la/new_orleans/codes/code_of_ordinances?nodeId=PTIICO_CH146STSIOTPUPL_ARTVIOBCUINUSST_DIV4AELVECH_S146-5630PPERE.

c. Siting Barriers (cont'd)

3. Electrical Capacity at Downtown Parking Decks

The City owns eight parking decks and six surface lots in downtown Akron. With a stark increase in residential units in downtown Akron buildings, private developers have shown increased interest in utilizing City-owned parking infrastructure for their residents' EV charging needs. The Taskforce recommends that the City consider grants, assistance and/or incentives for owners to install Level 2 charging stations where access to home charging is limited, such as in the downtown Akron scenario. The Taskforce also strongly recommends that the City engage in a public-private partnership for installation, ownership, operation and maintenance of a public network of charging stations. Any such partnership should prioritize proposals that address the need for EVSE close to areas that have little access to home charging.

The City conducted a preliminary review of electrical capacity at downtown parking decks owned by the City and determined that each of the following decks roughly has the capacity listed below:

Broadway | 120 S. Broadway



35 Lv1. 2 Chargers



LED LIGHTING

- Figures represent approximate no. of chargers that could be supported.



Cascade | 228 W. Mill



70 Lv1. 2 Chargers



1 Current Station

- Current Lighting Could Be Replaced w/ LED Lighting
- Figures represent no. of chargers that could be supported.



CitiCenter | 132 S. High St



100 Lv1. 2 Chargers

- Current Lighting Could Be Replaced w/ LED Lighting
- Figures represent no. of chargers that could be supported.



c. Siting Barriers (cont'd)

Morley | 177 S. Broadway

⚡ 38 Lv1. 2 Chargers

- Figures represent approximate no. of chargers that could be supported.



High/Market | 40 S. High St.

⚡ 33 Lv1. 2 Chargers

💡 2 Current Stations

- Figures represent approximate no. of chargers that could be supported.
- Current Lighting Could Be Replaced w/ LED Lighting



O'Neil | 51 W. State St.

⚡ 28 Lv1. 2 Chargers

- Figures represent approximate no. of chargers that could be supported.
- Current Lighting Could Be Replaced w/ LED Lighting



Opportunity Park | 666 S. Broadway

⚡ 25 Lv1. 2 Chargers

💡 1 Current Station

- Figures represent approximate no. of chargers that could be supported.
- Current Lighting Could Be Replaced w/ LED Lighting



c. Siting Barriers (cont'd)

Superblock | 11 W. Mill St.



46 Lvl. 2 Chargers



LED LIGHTING

• Figures represent approximate no. of chargers that could be supported.



To the degree that the City incentivizes or prioritizes areas that do not have access to home charging within a public EVSE network, the City should make its parking decks and publicly-owned surface lots available to accommodate residential and visitor demands in close proximity to those decks.

d. Design, Operations, Maintenance & Networking: Public-Private Partnership

The Taskforce Operations, Maintenance, Design & Networking Committee (O&M Committee) reviewed the available models for a municipal network's operations and maintenance, design, and networking. Importantly, the Federal Highway Administration published its final rule setting minimum standards and requirements for projects funding under the NEVI Formula Program and projects for the construction of publicly accessible electric vehicle chargers.”^{3 2} Purely public-owned, pure private ownership and public-private partnership models were evaluated. The Committee emphasized the need for any public EVSE network to be attentive to siting optimization processes and ongoing operations and maintenance requirements to avoid EVSE becoming “stranded assets.” In short, the process of providing sufficient and equitable EVSE coverage does not halt with siting decisions, but continues into the choice of vendor, operator, networking platform, pricing, user rules, and maintenance of the EVSE.

The O&M Committee recommended that the City develop a Request for Proposals for a public-private partnership to ensure that the appropriate field support and back end support is available for a public EVSE network. Notably, the O&M Committee found that proper upkeep of the infrastructure would require personnel in information technology and cybersecurity, certified maintenance staff, electrical engineering for appropriate design, 24/7 customer service, and compliance review regarding new federal standards. The O&M Committee also provided many considerations for site-specific design once locations are chosen. For every recommendation under operations and maintenance, design, and networking, the O&M Committee recommended that the City create an Request For Proposals calling for a public-private partnership to build out, operate and maintain any public EV charging station network in Akron.

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